

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 55250PCT8A	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 23708	International filing date (day/month/year) 29/08/2000	(Earliest) Priority Date (day/month/year) 25/02/2000
Applicant 3M INNOVATIVE PROPERTIES COMPANY		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

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☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

It is to be added reference signs put into brackets as follows:

- line 2: compound substrate (82) including a machined substrate (126) and a replicated substrate (116). ...
- line 3: ... structured surface (100) is a cube corner element (132, 134) on a compound substrate (82).
- line 4: ... the structured surface (100)...
- line 10: ... of a machined substrate (126); ...
- line 12: substrate (116) of the machined substrate to form a compound substrate (82); ...

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/23708**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: —
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

The present claims relate to a substrate , an article and a method of manufacturing defined in unduly broad and speculative terms covering a great number of technical fields. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for mainly retro reflective sheets and moulds for making them. The general reference in the description to two specific other technical fields in which the invention could be applied - namely mechanical fasteners and abrasive products- does not provide support for the broad claims, because there is no indication in the description as to how the invention could be carried out in such technical fields. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for a retro reflective sheet, a mould for making it and a method of making such a sheet or such a mould.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B29C33/38 B29D11/00 G02B5/122 G02B5/12 B29C59/02
B29C33/42

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B29C B29D G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 00 60385 A (3M INNOVATIVE PROPERTIES CO ; BENSON GERALD M (US); SMITH KENNETH L) 12 October 2000 (2000-10-12) the whole document	1-37
X	US 5 759 468 A (BENSON GERALD M ET AL) 2 June 1998 (1998-06-02) the whole document	1,2, 8-16,20, 21, 23-25, 27,28, 30-37

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

27 December 2000

Date of mailing of the international search report

12.01.01

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 95 11471 A (MINNESOTA MINING & MFG) 27 April 1995 (1995-04-27) the whole document	1,2, 8-16,21, 23-25, 27,28, 30-37
A	US 3 741 623 A (MIHALIK M) 26 June 1973 (1973-06-26) the whole document	1-37
A	WO 99 01273 A (MINNESOTA MINING & MFG) 14 January 1999 (1999-01-14) the whole document	1-37

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0060385	A	12-10-2000	NONE	
US 5759468	A	02-06-1998	US 6136416 A	24-10-2000
			CA 2171745 A	27-04-1995
			CN 1133092 A,B	09-10-1996
			DE 69420576 D	14-10-1999
			DE 69420576 T	02-03-2000
			EP 0724739 A	07-08-1996
			JP 9504385 T	28-04-1997
			WO 9511471 A	27-04-1995
WO 9511471	A	27-04-1995	CA 2171745 A	27-04-1995
			CN 1133092 A,B	09-10-1996
			DE 69420576 D	14-10-1999
			DE 69420576 T	02-03-2000
			EP 0724739 A	07-08-1996
			JP 9504385 T	28-04-1997
			US 6136416 A	24-10-2000
			US 5759468 A	02-06-1998
US 3741623	A	26-06-1973	NONE	
WO 9901273	A	14-01-1999	AU 5356898 A	25-01-1999
			CN 1259898 A	12-07-2000
			EP 0993363 A	19-04-2000

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/10248**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :C30B 29/66

US CL :359/528, 529; 117/84, 902, 923

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 359/528, 529; 117/84, 902, 923

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, CAS ONLINE

search terms: corner cube#, cube corner#, trihedr?, silicon, crystal?, epitax?, retroreflect?

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Database STN, Chemical Abstracts (Columbus, Ohio, USA), Abstract No. 125:180807, NEUDECK ET AL., "Precision crystal corner cube arrays for optical gratings formed by (100) silicon planes with selective epitaxial growth," Appl. Opt., Vol. 35, No. 19, issued 1996, pages 3466-3470.	1-42
X	US, A, 4,992,699 (MCCLURE ET AL) 12 February 1991 (12.02.91), see column 4, line 61-column 7, line 36.	17, 22-24, 34-42
Y		----- 16, 32-42



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*&*	document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means		
P document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

29 AUGUST 1997

Date of mailing of the international search report

19 SEP 1997

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